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Examiner Black,
Please call me at 202-824-3153 if you have any questions.

Sincerely,
Ross Dannenberg
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Amendment dated March 29, 2004
Supplemental Reply to Office Action of January 2, 2004

DRAFT ONLY

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re the Application of:

David ROZENSHTEN *et al.*

Serial No.: 09/876,993

Filed: June 11, 2001

For: MAINTAINING AND
RECONSTRUCTING THE HISTORY
OF DATABASE CONTENT
MODIFIED BY A SERIES OF
EVENTS

Atty. Docket No.: 003433.00025

Group Art Unit: 2177

Examiner: Black, Linh

Confirmation No.: 1837

SUPPLEMENTAL AMENDMENT

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

In response to the Office Action mailed January 2, 2004, please amend the instant application as follows:

Amendments to the Claims are reflected in the Listing of Claims, which begins on page 2 of this paper.

Remarks/Arguments begin on page 11+2 of this paper.

If any fees are required or if an overpayment is made, the Commissioner is authorized to debit or credit our Deposit Account No. 19-0733, accordingly.

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[This listing of claims will replace all prior versions, and listings, of claims in the application.]

Listing of Claims:

1. (Previously Presented) A method of undoing changes to the content of at least one database, comprising the steps of:

- (1) storing data in a database;
- (2) sequentially performing a plurality of loads to said database; and
- (3) undoing at least one of said plurality of loads, wherein the undone load is a load performed prior to a most recent load performed to said database;

wherein the resulting content of the database reflects the data as if the undone load had not been performed.

2. (Previously Presented) A method of undoing changes made to the content of at least one database, comprising the steps of:

- (1) storing data in a database;
- (2) performing a plurality of loads to said database;
- (3) undoing at least one of said plurality of loads; and
- (4) reconstructing a load sequence of said database to as it existed just before the one of said plurality of loads was undone ignoring step (3);

wherein, subsequent to step (3), the resulting content of the database reflects the data as if the undone load had not been performed and, subsequent to step (4), the resulting content of the database reflects the data as if ~~the undone load~~ the one of said plurality of loads had been performed.

3. Canceled.

4. (Previously Presented) A method of undoing changes made to the content of at least one database, comprising the steps of:

- (1) storing data in a database;

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- (2) performing a plurality of loads to said database, wherein the load data comprises a load table and the database comprises a target table, and wherein a table structure of a table in a first load is different from a table structure of a table in a second load; and
- (3) undoing at least one of said plurality of loads,
wherein the resulting content of the database reflects the data as if the undone load had not been performed.

5. (Previously Presented) The method of claim 4, wherein the database table rows and the load table rows are correlated via a primary key.

6. (Previously Presented) A method of undoing changes made to the content of at least one database, comprising the steps of:

- (1) storing data in a database;
- (2) performing a plurality of loads to said database, wherein the load data comprises a load table and the database comprises a target table, and wherein the database table rows and the load table rows are correlated via a primary key; and
- (3) undoing at least one of said plurality of loads;
wherein the resulting content of the database reflects the data as if the undone load had not been performed, and
wherein performing a load in step (2) comprises the steps of:
 - i. inserting rows into the target with new key values;
 - ii. updating rows in the target table with existing key values; and
 - iii. deleting rows from the target table when a row's key value does not exist in the load table.

7. (Original) The method of claim 6, wherein during step (2) i., when inserting a row with a primary key which at some point in the past was deleted prior to said load, those columns

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for which the load does not contain data are set to the values that they had when the row was last deleted.

8. (Previously Presented) A method of undoing changes made to the content of at least one database, comprising the steps of:

- (1) storing data in a database;
- (2) performing a plurality of loads to said database, wherein the load data comprises a load table and the database comprises a target table;
- (3) undoing at least one of said plurality of loads; and
- (4) recording information in a second table, separate from said target table, wherein said information corresponds to each modification made to said target table,

wherein the resulting content of the database reflects the data as if the undone load had not been performed.

9. (Original) The method of claim 8, comprising the step of:

- (5) reconstructing a load sequence of said target table as it existed just before a load retraction.

10. (Original) The method of claim 9, further comprising the step of:

- (6) reconstructing a historical state of said target table at a discrete time in said load sequence, wherein said reconstructing is performed based at least in part on the information in the second table.

11. (Previously Presented) A system for undoing changes to the content of at least one database, comprising:

- a processor; and
- a memory;

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wherein in the memory is stored a database and computer readable instructions such that when the computer readable instructions are executed by the processor the system is adapted to perform the steps of:

- (1) storing data in a database;
- (2) sequentially performing a plurality of loads to the database; and
- (3) undoing at least one of said plurality of loads, wherein the undone load is a load performed prior to a most recent load performed to said database;

wherein the resulting content of the database reflects the data as if the undone load had not been performed.

12. (Presently Amended) A system for undoing changes made to the content of at least one database, comprising:

a processor; and

a memory;

wherein in the memory is stored a database and computer readable instructions such that when the computer readable instructions are executed by the processor the system is adapted to perform the steps of:

- (1) storing data in a database;
- (2) performing a plurality of loads to the database;
- (3) undoing at least one of said plurality of loads; and
- (4) reconstructing a load sequence of said database to as it existed just before the one of said plurality of loads was undone ignoring step (3),

wherein, subsequent to step (3), the resulting content of the database reflects the data as if the undone load had not been performed and, subsequent to step (4), the resulting content of the database reflects the data as if the one of said plurality of loads ~~the undone load~~ had been performed.

13. Canceled.

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14. (Previously Presented) A system for undoing changes made to the content of at least one database, comprising:

a processor; and

a memory;

wherein in the memory is stored a database and computer readable instructions such that when the computer readable instructions are executed by the processor the system is adapted to perform the steps of:

- (1) storing data in a database;
- (2) performing a plurality of loads to the database, wherein the load comprises a load table and the database comprises a target table, and wherein a table structure of a table in a first load is different from a table structure of a table in a second load; and
- (3) undoing at least one of said plurality of loads;

wherein the resulting content of the database reflects the data as if the undone load had not been performed.

15. (Previously Presented) The system of claim 14, wherein the database table rows and the load table rows are correlated via a primary key.

16. (Previously Presented) A system for undoing changes made to the content of at least one database, comprising:

a processor; and

a memory;

wherein in the memory is stored a database and computer readable instructions such that when the computer readable instructions are executed by the processor the system is adapted to perform the steps of:

- (1) storing data in a database;

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(2) performing a plurality of loads to the database, wherein the load comprises a load table and the database comprises a target table, and wherein the database table rows and the load table rows are correlated via a primary key; and

(3) undoing at least one of said plurality of loads;

wherein performing a load in step (2) comprises the steps of:

- i. inserting rows into the target with new key values;
- ii. updating rows in the target table with existing key values; and
- iii. deleting rows from the target table when a row's key value does not exist in the load table,

wherein the resulting content of the database reflects the data as if the undone load had not been performed.

17. (Original) The system of claim 16, wherein during step (2) i., when inserting a row with a primary key which at some point in the past was deleted prior to said load, those columns for which the load does not contain data are set to the values that they had when the row was last deleted.

18. (Previously Presented) A system for tracking undoing changes made to the content of at least one database, comprising:

a processor; and

a memory;

wherein in the memory is stored a database and computer readable instructions such that when the computer readable instructions are executed by the processor the system is adapted to perform the steps of:

- (1) storing data in a database;
- (2) performing a plurality of loads to the database;
- (3) undoing at least one of said plurality of loads; and
- (4) recording information in a second table, separate from said target table, wherein said information corresponds to each modification made to said target table,

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wherein the resulting content of the database reflects the data as if the undone load had not been performed.

19. (Original) The system of claim 18, wherein the computer readable instructions further cause the system to perform the step of:

(5) reconstructing a load sequence of said target table as it existed just before a load retraction.

20. (Original) The system of claim 19, wherein the computer readable instructions further cause the system to perform the step of:

(6) reconstructing a historical state of said target table at a discrete time in said load sequence, wherein said reconstructing is performed based at least in part on the information in the second table.

21. (Previously Presented) A computer readable medium storing computer readable instructions that, when executed by a processing unit, cause a data processing device to undo changes to the content of at least one database by performing the steps of:

- (1) storing data in a database;
- (2) sequentially performing a plurality of loads to said database; and
- (3) undoing at least one of said plurality of loads, wherein the undone load is a load performed prior to a most recent load performed to said database;

wherein the resulting content of the database reflects the data as if the undone load had not been performed.

22. (Previously Presented) A computer readable medium storing computer readable instructions that, when executed by a processing unit, cause a data processing device to undo changes made to the content of at least one database by performing the steps of:

- (1) storing data in a database;
- (2) performing a plurality of loads to said database;

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- (3) undoing ~~at least one~~ of said plurality of loads; and
- (4) reconstructing a load sequence of said database to as it existed just before the one of said plurality of loads was undone, ignoring step (3)

wherein, subsequent to step (3), the resulting content of the database reflects the data as if the undone load had not been performed and, subsequent to step (4), the resulting content of the database reflects the data as if the one of said plurality of loads the undone load had been performed.

23. Canceled.

24. (Previously Presented) A computer readable medium storing computer readable instructions that, when executed by a processing unit, cause a data processing device to undo changes made to the content of at least one database by performing the steps of:

- (1) storing data in a database;
- (2) performing a plurality of loads to said database, wherein the load data comprises a load table and the database comprises a target table, and wherein a table structure of a table in a first load is different from a table structure of a table in a second load; and
- (3) undoing at least one of said plurality of loads,

wherein the resulting content of the database reflects the data as if the undone load had not been performed.

25. (Previously Presented) The computer readable medium of claim 24, wherein the database table rows and the load table rows are correlated via a primary key.

26. (Previously Presented) A computer readable medium storing computer readable instructions that, when executed by a processing unit, cause a data processing device to undo changes made to the content of at least one database by performing the steps of:

- (1) storing data in a database;

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(2) performing a plurality of loads to said database, wherein the load data comprises a load table and the database comprises a target table, and wherein the database table rows and the load table rows are correlated via a primary key; and

(3) undoing at least one of said plurality of loads;

wherein the resulting content of the database reflects the data as if the undone load had not been performed, and

wherein performing a load in step (2) comprises the steps of:

- i. inserting rows into the target with new key values;
- ii. updating rows in the target table with existing key values; and
- iii. deleting rows from the target table when a row's key value does not exist in the load table.

27. (Original) The computer readable medium of claim 26, wherein during step (2) i., when inserting a row with a primary key which at some point in the past was deleted prior to said load, those columns for which the load does not contain data are set to the values that they had when the row was last deleted.

28. (Previously Presented) A computer readable medium storing computer readable instructions that, when executed by a processing unit, cause a data processing device to undo changes made to the content of at least one database by performing the steps of:

- (1) storing data in a database;
- (2) performing a plurality of loads to said database;
- (3) undoing at least one of said plurality of loads; and
- (4) recording information in a second table, separate from said target table, wherein said information corresponds to each modification made to said target table,

wherein the resulting content of the database reflects the data as if the undone load had not been performed.

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29. (Original) The computer readable medium of claim 28, wherein the computer readable instructions further cause the data processing device to perform the step of:

- (5) reconstructing a load sequence of said target table as it existed just before a load retraction.

30. (Original) The computer readable medium of claim 29, wherein the computer readable instructions further cause the data processing device to perform the step of:

- (6) reconstructing a historical state of said target table at a discrete time in said load sequence, wherein said reconstructing is performed based at least in part on the information in the second table.

31. (New) The method of claim 2, further comprising:

- (5) reconstructing a historical state of said database at a discrete time in the load sequence of step (4), wherein said reconstructing is performed based at least in part on information in a table storing information corresponding to each modification made to a target table.

32. (New) The system of claim 12, wherein the computer readable instructions further comprise:

- (5) reconstructing a historical state of said database at a discrete time in the load sequence of step (4), wherein said reconstructing is performed based at least in part on information in a table storing information corresponding to each modification made to a target table.

33. (New) The computer readable medium of claim 22, wherein the computer readable instructions further comprise:

- (5) reconstructing a historical state of said database at a discrete time in the load sequence of step (4), wherein said reconstructing is performed based at least in

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part on information in a table storing information corresponding to each
modification made to a target table.

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REMARKS/ARGUMENTS

The office action of January 2, 2004 has been carefully reviewed and these remarks are a supplemental responsive thereto. By the present amendment, Applicants have amended claims 2, 12, and 22 and added new claims 31-33. Claims 1-2, 4-12, 14-22, and 24-33 remain pending after entry of the present amendment. Reconsideration and allowance of the instant application are respectfully requested.

Rejections Under 35 U.S.C. § 112, Second Paragraph

Claims 2, 12, and 22 stand rejected under 35 U.S.C. § 112, 2nd paragraph, as being indefinite. Applicants respectfully traverse by amending claims 2, 12, and 22 to clarify applicants' invention.

New Claims

Applicants have added new claims 31-33, allowable based at least on the allowability of their respective base claims. No new matter has been added.

Conclusion

All rejections having been addressed, Applicants respectfully submit that the instant application is in condition for allowance, and respectfully solicit prompt notification of the same. However, if for any reason the Examiner believes the application is not in condition for allowance or there are any questions, the examiner is invited to contact the undersigned at (202) 824-3153.

Respectfully submitted,

BANNER & WITCOFF, LTD.

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Dated this ____ day of _____, 2004

By:

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